ABERRANTLY PLUMAGED BARBETS

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In the course of our studies (LLS, JFMH) of African barbets (Capitonidae) we have observed several aberrantly plumaged individuals of two species. This led to a review of literature on such aberrant barbets, especially the report on the Black-collared Barbet *Lybius torquatus* by Salomonsen (1934). We note our observations, and point out various other reported individuals in aberrant plumages because these seem to occur with some frequency in the family, and because colour replacement is evident between members of various species pairs and within species groups (e.g. differences between the White-headed and Chaplin's Barbets *Lybius leucocephalus* and *L. chaplini,* between the Red-faced and Black-billed Barbets *L. rubrifacies* and *L. guifsobalito,* between the Red and Yellow and Yellow-breasted Barbets *Trachyphonus erythrocephalus* and *T. margaritatus,* and between the Yellow-fronted Tinkerbird and the Red-fronted Tinkerbird *Pogoniulus chrysoconus* and *P. pusillus*). Tendencies for intra-specific colour variations may be related to the speciation process in that the genetics of the observed variation could be similar to that involved in speciation affecting the same traits.

OBSERVATIONS

While studying Red-faced Barbets in the Lake Birengero region, southern Akagera National Park, eastern Rwanda on 3 January 1982, we encountered a largely white barbet accompanying one, and at times up to four Red-faced Barbets in typical plumage (this is essentially black with yellow edges on the primaries and secondaries and a red area from the forecrown to the forehead, around the eyes and over the forethroat and chin). The habitat in which we found the bird was hill-slope *Combretum-Terminalia* open woodland west of Lake Birengero. The white barbet interacted within a group of two to five birds, and in observations during parts of three days between 3 and 7 January it associated closely with one Red-faced Barbet in particular. Using playback of the duets of this species (Short & Horne MS) we stimulated the five-bird group so that two birds duetted, presumably the primary pair, and several times while the other three members of the group were elsewhere, we were able to elicit duets by the white bird and its close associate (these duets were recorded on tape by JFMH). Vocally the white bird was typical of *rubrifacies,* and hence there is no doubt that it represents that species, although we had thoughts of it possibly being *Lybius chaplini* during our initial encounter with it.

We carefully noted the plumage of the white barbet and, on 3 January, it was sketched by J-PV (Fig. 1). Based upon our collective field notes, taped comments and the sketch, we can describe the bird as follows: bill pale (creamy) yellowish; 'face', i.e. forehead to mid-crown, forethroat, chin, area around eyes, lores and anterior moustachial region, red as in typical *rubrifacies;* rest of head, upperparts, underparts, wing coverts and tail clear white except for the outer two or so tail feathers that were black, and the primaries and secondaries, which were black, edged with pale yellow. The bill was also paler than in typical *rubrifacies.* Because of the melanin evident in its wings and tail, and the presence of the presumably lipochromic pigments red and yellow, we consider the bird to have been a largely albinistic individual of *L. rubrifacies.* To our knowledge no such aberrantly plumaged individual of this species has been mentioned in the literature.

From 17 to 20 September 1980 LLS and JFMH studied tinkerbirds (*Pogoniulus chrysoconus*) at about 1300 m, 28 km northwest of Kericho, western Kenya in

Fig. 1. *Aberrantly plumaged White-headed Barbet*

a degraded patch of acacia woodland amid cultivation near the main Kericho-Kisumu road. Here we found a population of variably yellow-to gold-fronted Yellow-fronted Tinkerbirds. We quickly became aware that one of about half a dozen of the tinkerbirds about us had a *red*, not gold, orange or yellow front. We thought the bird might be a representative of *P. pusillus*, very similar to and parapatric with, *P. chrysoconus*, with which it forms a superspecies (to attract *chrysoconus* we played back various calls of *pusillus only*, always getting a response, just as in Malawi in 1980 we had *chrysoconus* reacting to playback of Kenyan *pusillus*, and in central and southern Kenya we have had *pusillus* respond to playback of *chrysoconus* as if their calls were of the same species). Its vocalizations seemed generally typical of *chrysoconus* (voice recorded by JFMH), although the various calls of the two are so similar as to make distinction difficult. Careful observations showed no other features (colour of underparts or general pattern) that we could ascribe to *pusillus*. Unfortunately we were unable to collect the bird. Adjacent *chrysoconus* collected (three birds) were gold-to yellow-fronted. We could find no *P. pusillus* in a roadside search within 10 km of that site, although *chrysoconus* was common to abundant. We surmise that the individual seen, which reacted strongly to, and was dominant on its 'territory' to adjacent *chrysoconus*, was a red-fronted mutant, or otherwise aberrant *P. chrysoconus*.

We note that in southern Africa, where *P. chrysoconus* and *P. pusillus* are also parapatric, there exists near the range of *pusillus* a population of *chrysoconus* that tends to be orange-fronted. Ross (1970) showed that these orange-fronted (Transvaal) tinkerbirds resemble *chrysoconus*, and show no other traits indicating *pusillus* influence. He concluded (Ross 1970: 203) that the orange-fronted birds are variant individuals of *P. chrysoconus*. In view of the vocal as well as morphological similarity between these two tinkerbirds, it is interesting that the aberrantly plumaged (red- or orange-fronted) birds come from areas close to the range of red-fronted *P. pusillus*.

OTHER ABERRANTLY PLUMAGED BARBETS

Within *Lybius*, the Ethiopian Banded Barbet *L. undatus leucogenys* varies greatly. Individuals of this subspecies may have white supercilia without other head markings, or have white blotches on an otherwise black throat, white marks on the ear coverts, the sides of the neck and the hind neck. In some birds with mixed throat colour the pale patches are white but others

have the white mixed with red or orange. Of those *leucogenys* showing white or red on the head, no two birds are alike. Traylor (1962) described a moulting specimen of *leucogenys* in which the yellow of the underparts, flight feathers of the wing, rump and uppertail coverts was replaced by orange in the new but not the old plumage. Macdonald (1938) suggested how great is the variation in *leucogenys* by describing its throat as black to white. Even in black-throated *L. u. undatus* some individuals exhibit red feathers amid the black throat feathers (pers. obs.).

Steyn & Densham (1975: 51) reported a Black-collared Barbet *L. torquatus* in Mkuzi Game Reserve, South Africa, having its head "lime yellow" instead of the normal red, a presumed case of xanthocroism. There is much variation in the tone of red (orange-red, red-orange) in specimens of *torquatus* that we have examined, some birds even showing yellowish (the related, red-headed *L. guifsobalito* shows the same variation towards orange and even yellow (pers. obs.)). Salomonsen (1934) treated the forms *zombae* and '*albonotatus*' of *L. torquatus;* the former has the red of its head replaced by black bearing white or yellow-white spots, and the latter shows a partial white supercilium. It is known (Short & Horne, in press) that *zombae* (including *albigularis*) is a variable but valid race of *L. torquatus,* the red of its head being replaced by black with the spots just mentioned. Williams (1966) described a race *nampunju* from southern Tanzania; it seems to represent an extreme, white-throated variant of *L. torquatus zombae.*

Occasional specimens of *Lybius minor*, the Black-backed Barbet, show indications of partial albinism in white marks on the plumage (pers. obs.). A female Double-toothed Barbet *L. bidentatus* from Ntandi, Uganda, in the Cornell University collection is aberrant in having its upper back half white (instead of all black) and one white feather bears an orange spot. Most specimens of the Brown-breasted Barbet *L. melanopterus* bear a white moustachial mark usually masked by the red of the surrounding feathers. A specimen (No. 108953) of Vieillot's Barbet *L. vielloti* in the Leningrad Zoological Museum has the red of the head entirely replaced by buffy yellow and its breast spots are yellowish rather than red; peculiarly, the areas normally yellow in *vielloti* have the yellow suppressed in this bird, that is, its belly lacks yellow, as do the edges of the primaries and secondaries, and the yellow rump is very pale. The melanins are unaffected in this specimen, which can be considered xanthocroic with some reduction of lipochrome pigments. Also partly xanthocroic is an unsexed Gambian Boucard specimen of *vielloti* in the Cornell University collection, generally typical of that species; it is pale yellow-orange in the malar area, under the eye and across the centre of its crown.

In the collection of the American Museum of Natural History is a male Yellow-breasted Barbet *Trachyphonus margaritatus* (No. 454080) obtained by G.W. Bury or his collectors in the Wagar Mountains of Somalia. This bird is fully albino, lacking all melanins; it is entirely white except as follows:

1. yellow forehead, sides of crown, supercilia, crest, and rear of the neck (where shaft streaks are orange);
2. bright yellow nape, ear coverts (except for a white patch over the ear openings), 'face', chin, throat and breast, with orange shaft streaks on the sides of the mid-breast;
3. pale red feather tips at the border of the breast and belly;
4. very pale yellow tips of the white belly to undertail coverts;
5. a yellow-cream tinge to the white tail which is unlike the pure white wings and most of the back;
6. bright red uppertail coverts;
7. a few pale yellow tips on the lower back;
8. rump feathers broadly yellow-tipped on white.

Thus, the lipochrome pigments appear in this specimen as red and yellow where these normally occur in *margaritatus,* the normally melanic parts of the plumage being white.

DISCUSSION

These tendencies towards colour aberration described are, in our experience, unusual in avian families. Of course albinism, melanism and xanthocroism occur in most if not all groups of birds, but instances of replacement patterning, the addition of presumed lipochrome pigments to melanic pigmented or unpigmented (white) areas, and partial albinism in a group having white-headed, white-bodied and white facially-striped species are of significance. Speciation can involve mutations relating to these patterns, and probably has done so, e.g., in the evolution of the *Tricholaema diadematа* complex, *T. hirsuta, T. melanocephala (flavibuccalis), Stactolaema olivacea (woodwardi), Lybius leucocephalus, L. chaplini* and probably *L. vieilloti.* White and melanic face patterning and the presence or absence of a white scapular bar are traits by which the hybridizing *L. minor minor* and *L. minor macclounii* differ (Short 1982).

Replacement of red by yellow, or vice versa is apt to be genetically very simply controlled, yet differences involving these colours appear important between yellow-fronted *Pogoniulus chrysoconus* and red-fronted *P. pusillus,* and between yellow-cheeked *Trachyphonus margaritatus* and red-cheeked *T. erythrocephalus* (both *Trachyphonus* have a small white ear patch, obscured by the pale yellow colour of the ear coverts in *margaritatus,* but emphasized by the bright red surrounding it in *erythrocephalus*). We do not speculate further at this time, but call upon field observers to note such aberrancies in these and other barbets, and to report them to us, or publish their observations.

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